

REMARKS

Reconsideration is respectfully requested in light of the foregoing amendments and remarks which follow is respectfully requested.

Claims 1-8 are before the Examiner. Claims 1 and 2 are amended. Claim 1 has been amended so that it is in a product by process format, i.e., the product is specified as having been prepared by the processes of any one of claims 2, 5 or 6. Claim 2 is rewritten as an independent claim and further specifies nature of the surface modifying agent contact. The agent is either in vapor or spray form. The product claim of claim 1 is now more commensurate in scope with the results presented in Table 2, the passage on page 7, at lines 14 -26 and the process described in Example 3.

Claims 1-8 are rejected under 35 USC 103(a) as being unpatentable over Barthel et al. (USPP 2003/0138715) further in view of Nargiello et al. (USP 6193795). Applicants respectfully traverse.

The position taken by the Examiner appears to be that it would have been obvious to employ the destructured silica of Nargiello et al as the pyrogenic silica source for the Barthel et al process. (It is noted that the Examiner takes notice of the fact that the Barthel et al process includes more and different steps than those claimed. It appears that the steps added or deleted apparently are deemed obvious based on the rationale that one can add or delete a step with the expectation of a gain or loss of a step's function.¹) It would appear that as part of the Examiner's rationale one would employ destructured pyrogenic silica in the Barthel et al process even though there is no apparent need. Nargiello et al. do not discuss a problem, which would be apparent in

¹ The process as claimed requires the performance of both a destructuring step (step c) and a step for recovering a silanized, destructured product (step d). A destructuring step is not taught by Barthel et al expressly or inherently. Claims 5 and 6 (as amended) require both a grinding and a conditioning step. These steps are performed on a destructured silanized product. Table 5 shows the step sequence is critical to obtaining the desired product which imparts an enhanced tear resistance to silicone rubber. Compare results of Examples 3 to those of Examples 7 and 11. The silicone product resulting from the use of the Example 3 product (both grinding and heat treatment steps are performed) is superior in terms of tear resistance to the silicone product achieved by the use of silanized, destructured silica of Examples 7 and 11.

Barthel et al. for which their destructured silica would be a solution.

Barthel et al describes their highly porous product is useful as a toner, developer, charge control agent. See [0090]. Barthel et al. mention their silica as useful as a theological agent and as reinforcing filler (see paragraphs [0087] and [0088], respectively).

Nargiello et al. teach that the grinding process (destructuring) of pyrogenic silica goes beyond a particle size reduction. See col. 2, l. 20-48. Nargiello et al. specifically contrast how their destructuring operation is distinct from that employed in the “normal” operation of a ball mill. See col. 3 at l.42-56 and col. 5 at lines 14-66. Before and after results relative to destructuring are shown in the table appearing in col. 7 and also in Tables 1 and 2. Nargiello et al teaches a filler use. Hydrophobizing is mentioned. However, there is no mention of a need for both vinyl or vinyl silyl groups and hydrophobic groups as required by the claims..

It is not clear from the Office action why one of ordinary skill would have selected a more “processed” form of pyrogenic silica for use in the Barthel et al process when pyrogenic silica is taught by Barthel et al as adequate.

With regard to the reinforced polymer claimed, neither Barthel et al nor Nargiello et al. teach or suggest Applicants’ tear resistant silicone rubber product.

Should the examiner be of the opinion that a prima facie case has been established based on the references, it is respectfully submitted that the results shown in the specification in Tables 4 and 5 be considered sufficient to rebut the prima facie case. The claims as rewritten are clearly commensurate with the results shown in the Tables 4 and 5. The process steps referenced in the tables are required by the product and process claims.

Withdrawal of the rejection is respectfully requested.

Claims 1-8 are rejected under 35 USC 103(a) as being unpatentable over Hartmann et al. (USP 5,595,005) in view of Fitzgerald et al. (USP 5,623,028). Applicants respectfully traverse.

Claim 1 has been amended to more clearly evidence a product by process character. Claim 2 has been amended to set forth the nature of the surface modifying agent contact step, e.g. the surface modifying agent is in vapor form.

The Hartmann et al. and Fitzgerald et al. patents have been considered.

Hartmann et al. (USP 5,595,005) teach destructured pyrogenic metallic oxides including silica and their use in polymers to improve extrusion rates. Hydrophobizing agents are taught; however, there is no mention of the vinyl groups as claimed. There is also no mention or suggestion of tear resistance imparted to silicone rubber through the use of fillers like those claimed or for any filler type.

Fitzgerald et al. (USP 5,623,028) teaches the control of silanol density in pyrogenic silica fillers and the use of fillers in heat curable rubbers to affect physical properties, e.g. compression set. There is no mention of tear resistance. There is also no mention of destructured pyrogenic silica or advantages for destructuring silica.

The passages in Fitzgerald et al. patent identified by the Examiner in the Office Action do mention that the presence of the vinyl group is expected to permit interaction of the filler with the polymer matrix. However, that teaching is not an equivalent with a teaching that such interactions give rise to tear resistance. Further, that teaching does not suggest the possibility of tear resistance to the degree shown in the Table 5. Also Table 5 suggests that the tear resistance is due to the presence of factors other than the vinyl group. Note the comparison. The other factors which vary include process steps and conditions, grinding and heat treatment steps, the nature of the contact of the modifying agent with the silica surface, e.g. treating the silica with the agent in vapor or spray form.

The instant product claim(s) as amended is more clearly drawn to the demonstrated product characteristics since the process steps are more clearly evidenced in the claims.

The Examiner rationale for finding the invention as claimed to have been obvious has been considered. More factors are involved than the mere presence of vinyl and hydrophobic groups on the silica surface. Neither reference suggests the importance of these additional factors on product characteristics.

Should the Examiner be of the opinion that a proper prima facie case of obviousness is established. The results shown in the Tables 4 and 5 should be considered as rebutting such a case. The references are not suggestive of the results achieved and the claims as amended are commensurate in scope with the results shown.

Withdrawal of the rejection is respectfully requested.

Request for Interview


Applicants respectfully request either a telephonic or an in-person interview should there be any remaining issues.

CONCLUSION

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Therefore, it is respectfully requested that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

It is not believed that extensions of time are required, beyond those that may otherwise be provided for in accompanying documents. However, in the event that additional extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned under 37 C.F.R. 1.136(a), and any fees required therefore are hereby authorized to be charged to **Deposit Account No. 02-4300, Attorney Docket No. 032301.615 (39509.236168).**

Respectfully submitted,
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Date: June 30, 2009

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